

What is claimed is:

1. A method for the in-situ removal or remediation of contaminants in a soil formation containing a subsurface groundwater aquifer, the method comprising the steps of:
 injecting a first oxidant into the aquifer at an injection point to create a volume of influence of the first oxidant in the aquifer thereby treating the contaminants contained within the volume of influence; and
 injecting a compressed gas into the aquifer to increase the size of the volume of influence of the first oxidant.
2. The method of claim 1, wherein the injection of the compressed gas into the aquifer also forces the groundwater in the aquifer away from the injection point into a surrounding area thereby transporting the first oxidant into the surrounding area.
3. The method of claim 2, wherein the surrounding area includes the saturated zone.
4. The method of claim 2, wherein the surrounding area includes the smear zone.
5. The method of claim 3, wherein the injection of the compressed gas into the aquifer forces the groundwater into the surrounding area thereby extracting contaminants from soil adjacent to the surrounding area.
6. The method of claim 5, further comprising the step of:
 after the compressed gas injection step, allowing the groundwater to return to the volume of influence of the first oxidant from the surrounding area by discontinuing injection of the compressed gas, thereby returning the contaminants extracted from the soil to the volume of influence of the first oxidant.

7. The method of claim 1, wherein the first oxidant is selected from the group consisting of a hydrogen peroxide solution, an ozone/air mixture, an ozone/oxygen mixture, and combinations thereof.
8. The method of claim 1, further comprising the step of:
injecting a second oxidant into the aquifer to treat the contaminants contained within the aquifer.
9. The method of claim 8, wherein the first oxidant is a hydrogen peroxide solution and the second oxidant is an ozone/oxygen mixture.
10. The method of claim 8, wherein the concentration of hydrogen peroxide in the hydrogen peroxide solution is less than about 70% by weight in water.
11. The method of claim 8, wherein the first and second oxidants chemically react with each other to form hydroxyl radicals.
12. The method of claim 1, further comprising the step of:
injecting a second oxidant in combination with compressed gas into the aquifer to treat the contaminants contained within the aquifer.
13. The method of claim 1, wherein the injection of the compressed gas into the aquifer occurs after the conclusion of the injection of the oxidant into the aquifer.
14. The method of claim 1, wherein the compressed gas is selected from the group consisting of air, nitrogen, oxygen, carbon dioxide, and any combination thereof.
15. The method of claim 1, wherein the injection of the compressed gas is periodically cycled.

16. A method for the in-situ removal or remediation of contaminants in a soil formation containing a subsurface groundwater aquifer, wherein the contaminants are spread out by diffusion, movement of the groundwater, and other mechanisms to form a contaminant plume, the method comprising the steps of:
 - alternately injecting, in any order, a hydrogen peroxide solution, an ozone/oxygen mixture, and compressed gas into the aquifer at an injection point to treat the contaminants contained within the groundwater, wherein the injection of the compressed gas forces the groundwater away from the injection point into a saturated zone or smear zone of the contaminant plume thereby transporting the hydrogen peroxide solution and the ozone/oxygen mixture into the saturated zone or smear zone of the contaminant plume.
17. The method of claim 16, wherein the groundwater transported into the saturated zone or smear zone of the contaminant plume desorbs contaminants from soil adjacent to the saturated zone or smear zone of the contaminant plume thereby bringing such contaminants into solution to be subsequently treated.
18. The method of claim 17, further comprising the step of:
 - after the compressed gas injection step, allowing the groundwater to return to the injection point from the saturated zone or smear zone of the contaminant plume thereby returning the contaminants desorbed from the soil to an area adjacent to the injection point.
19. The method of claim 18, wherein the injection of the compressed gas is periodically cycled to agitate the contaminants to bring them into solution with the groundwater.
20. The method of claim 17, wherein a second oxidant in combination with the compressed gas can be alternately injected into the aquifer to treat the contaminants contained within the aquifer.

21. The method of claim 17, further comprising the step of:
alternately injecting, in any order, one or more oxidants and compressed gas into the aquifer at multiple injection points to optimize the direction and movement of the oxidants within the contaminant plume.
22. The method of claim 21, wherein the alternating injection of one or more oxidants and compressed gas into the aquifer at multiple injection points increases the desorption and agitation of the contaminants into the groundwater.
23. A method for the in-situ removal or remediation of contaminants in a soil formation containing a subsurface groundwater aquifer, the method comprising the steps of:
intermittently introducing, individually and in any order, a first oxidant, a second oxidant, and compressed gas into the groundwater to treat the contaminants contained within the aquifer, wherein the introduction of each oxidant creates a volume of influence of each oxidant, wherein the introduction of the compressed gas increases the size of each volume of influence of each oxidant.
24. The method of claim 23, wherein a second oxidant in combination with the compressed gas can be alternately injected into the aquifer to treat the contaminants contained within the aquifer.